The Power of a Modern Distributed Database

YugabyteDB and VMware Tanzu

OUR PARTNERSHIP

YugabyteDB and VMware Tanzu complement each other and help organizations adopt a modern approach to building, running, and managing their modern workloads.

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Yugabyte on VMware Marketplace

VMware Tanzu Overview

Yugabyte Overview

As companies around the world and across industries engage in app modernization initiatives, their developers find it increasingly difficult to match those efforts with a strong data layer. Developers today continue to work with costly monolithic databases like Oracle or DB2 and NoSQL databases that forgo strong data consistency and important relational features. It's clear that a new database architecture is required to match the ambition of app modernization efforts.

Modern distributed SQL databases paired with the right platform for building and running cloud native services provides the perfect answer. As the first distributed SQL database included in the VMware Marketplace in 2020, YugabyteDB delivers an enterprise-ready, transactional database with the native resilience and scalability needed for modern applications. The modern database is 100 percent open source and built for running mission-critical transactional applications in any cloud—private, public and hybrid. Users have their choice of using a simple, fully managed database as a service (DBaaS) in their cloud of choice with YugabyteDB Managed, or deploying a self-managed DBaaS on any hybrid, public, or private cloud with YugabyteDB Anywhere.

VMware Tanzu enables customers' software supply chain to be more secure—all the way from app development to having their apps running in production. Moreover, the portfolio offers a cohesive developer experience across any Kubernetes to speed application development and delivery cycles. Together, YugabyteDB and VMware Tanzu portfolios assist organizations to adopt a modern approach to building, running, and managing their modern workloads.

Benefits of YugabyteDB and VMware Tanzu

With YugabyteDB and VMware Tanzu, cloud native developers can build and modernize mission-critical transactional applications that require scale, performance, consistency, and resilience. That's what makes the distributed, developer-friendly YugabyteDB product a perfect complement to any VMware Tanzu-powered app modernization efforts.

Cloud Native Scalability

By pairing YugabyteDB with VMware Tanzu, application developers first benefit from an easy and cloud native way of scaling their relational SQL workloads for microservices applications without having to face the

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complexities of traditional scaling techniques. The native horizontal scalability of distributed SQL eliminates the challenges with opening numerous database connections from microservices, higher latencies due to high query volumes, and overall query limits. Secondly, using a YugabyteDB JDBC driver, the microservices get cluster awareness by default enabling scalability without load balancers.

Accelerate Developer Productivity

The joint solution also helps developers accelerate their productivity. Spring is a Java development framework that's used by millions of developers around the world to build their applications. VMware Tanzu Application Platform streamlines the path to production for developers by providing a modular, app-aware platform that runs on any compliant public cloud or on-premises Kubernetes cluster. For developers who build applications using Spring and Tanzu Application Platform, YugabyteDB provides the perfect transactional and distributed SQL database for their needs. For example, YugabyteDB can directly enhance Spring capabilities around transaction management, especially in geo-distributed scenarios, to simplify and accelerate their app development.

For developers working on VMware Tanzu Kubernetes Grid or on vSphere with Tanzu distributions, a common requirement is an online transaction processing (OLTP) database that enables the processing of data associated with simultaneous and concurrent transactions. With YugabyteDB, developers have access to a cloud native OLTP database that can seamlessly deploy directly on Tanzu Kubernetes Grid. And by using Postgres as our front end, we can ensure that any developer familiar with Postgres can be productive on Day 1.
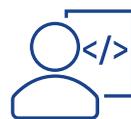
Cloud Flexibility

Another big advantage of the joint solution is flexibility. Just like Tanzu, YugabyteDB also delivers choices. Users have the freedom to deploy YugabyteDB across any cloud—public, private, or hybrid.

Enterprise Ready

And finally, both solutions are proven for enterprise-ready scenarios. YugabyteDB runs demanding, enterprise-class workloads at some of the world's largest companies, such as Walmart, Kroger, and Charles Schwab. Organizations can reduce their overall risk with a reliable, highly available solution while enjoying the benefits of open source software and built-in security.

Cloud Scalability   Developer Productivity   Cloud Flexibility

Ideal Use Cases

The YugabyteDB and VMware Tanzu solutions apply to a wide range of use cases and verticals. Along with general initiatives around application and database modernization, three key use cases are an ideal fit for the joint solution:

Mission-critical microservices

YugabyteDB combined with Tanzu and Spring Data gives developers an easy way to deploy YugabyteDB with their applications. Examples of microservices that can leverage the joint solution include shopping carts, personalization engines, product catalogs, and account metadata.

Edge and streaming applications

Smart cities, connected vehicles, industrial control systems, and on-site retail experiences are all examples of use cases that need a data layer that can scale to ingest massive volumes of data and offer low-latency access to analytics and events.

Geo-distributed workloads

Enterprises are seeking to deploy globally distributed customer-facing applications in order to deliver always-on, highly responsive services that are resilient to zone and region failures. The public cloud outages we've seen over the past few months highlight why this is so important.

| Mission-critical microservices | Edge and streaming applications | Geo-distributed workloads |

Deploying YugabyteDB on Tanzu Kubernetes Grid

VMware and Yugabyte collaborated on a joint Reference Architecture that details how to deploy YugabyteDB on Tanzu Kubernetes Grid (TKG). The architecture guide covers topics such as Kubernetes requirements and cluster layout for YugabyteDB.

By following the Reference Architecture, you should be able to create a highly available, production-grade deployment of YugabyteDB with VMware TKG. However, you should not feel constrained by the exact path in the document if your specific use cases lead you to a different deployment architecture. Design decisions in the architecture paper reflect the main design issues and the rationale behind a chosen solution path, and if necessary, can help provide rationale for any deviation.

The Reference Architecture discusses several different cluster layouts. The level of availability and redundancy required by the workloads being deployed will determine the topology of the clusters—from a simpler, single cluster running in just one availability zone, to a more complex deployment

of multiple clusters distributed all over the world, either on a single cloud provider or across multiple cloud providers.
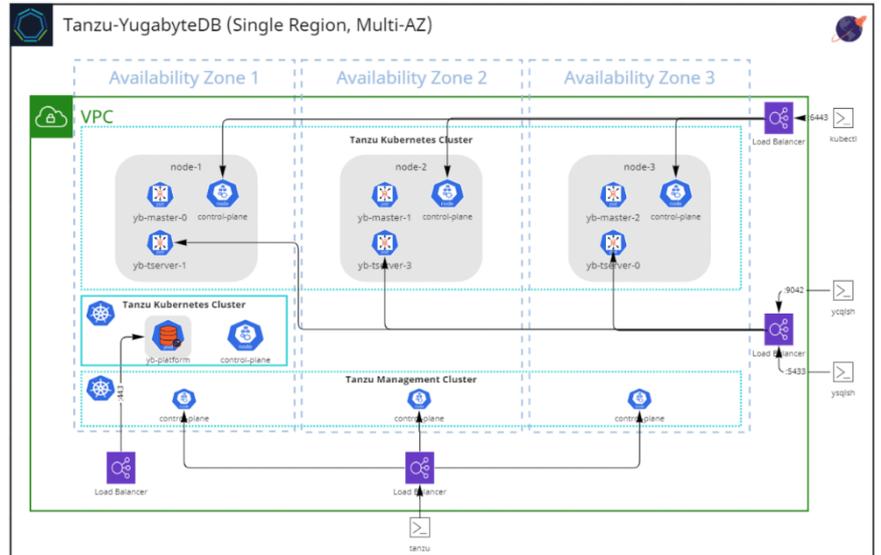

Figure 1: VMware Tanzu and YugabyteDB Joint Reference Architecture

How to get started

For more information on using YugabyteDB and VMware Tanzu, reach out to the Yugabyte team and we'll be in touch!